```
HU: MGSDVRDLNALLPAVPSLGGGGGCALPVSGAAQWAPVLDFAPPGASAYGSL
MO: MGSDVRDLNALLPAVSSLGGGGGCGLPVSGAAQWAPVLDFAPPGASAYGSL


HU: GGPAPPPAPPPPPPPPPHSFIKQEPSWGGAEPHEEQCLSAFTVHFSGQFTGTAG
MO: GGPAPPPAPPPPPPPPHSFIKQEPSWGGAEPHEEQCLSAFTLHFSGQFTGTAG


HU: ACRYGPFGPPPPSQASSGQARMFPNAPYLPSCLESQPAIRNQGYSTVTFDGTPS
MO: ACRYGPFGPPPPSQASSGQARMFPNAPYLPSCLESQPTIRNQGYSTVTFDGAPS


HU: YGHTPSHHAAQFPNHSFKHEDPMGQQGSLGEQQYSVPPPVYGCHTPTDSCTG
MO: YGHTPSHHAAQFPNHSFKHEDPMGQQGSLGEQQYSVPPPVYGCHTPTDSCTG


HU: SQALLLRTPYSSDNLYQMTSQLECMTWNQMNLGATLKGVAAGSSSSVKWTE
MO: SQALLLRTPYSSDNLYQMTSQLECMTWNQMNLGATLKGMAAGSSSSVKWTE


HU: GQSNHSTGYESDNHTTPILCGAQYRIHTHGVFRGIQDVRRVPGVAPTLVRSAS
MO: GQSNHGIGYESDNHTAPILCGAQYRIHTHGVFRGIQDVRRVSGVAPTLVRSAS


HU: ETSEKRPFMCAYPGCNKRYFKLSHLQMHSRKHTGEKPYQCDFKDCERRFSR
MO: ETSEKRPFMCAYPGCNKRYFKLSHLQMHSRKHTGEKPYQCDFKDCERRFSR


HU: SDQLKRHQRRHTGVKPFQCKTCQRKFSRSDHLKTHTRTHTGKTSEKPFSCR
MO: SDQLKRHQRRHTGVKPFQCKTCQRKFSRSDHLKTHTRTHTGKTSEKPFSCR


HU: WPSCQKKFARSDELVRHHNMHQRNMTKLQLAL
MO: WHSCQKKFARSDELVRHHNMHQRNMTKLHVAL
```

*Fig. 1*

Fig. 2

52 kD —                                                    — 52 kD

        1       2          3       4          5       6

   control antibody   non immunized    immunized
                         B6 sera         B6 sera
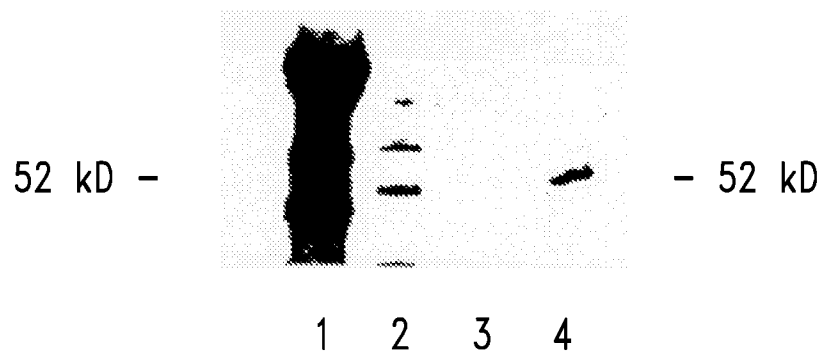
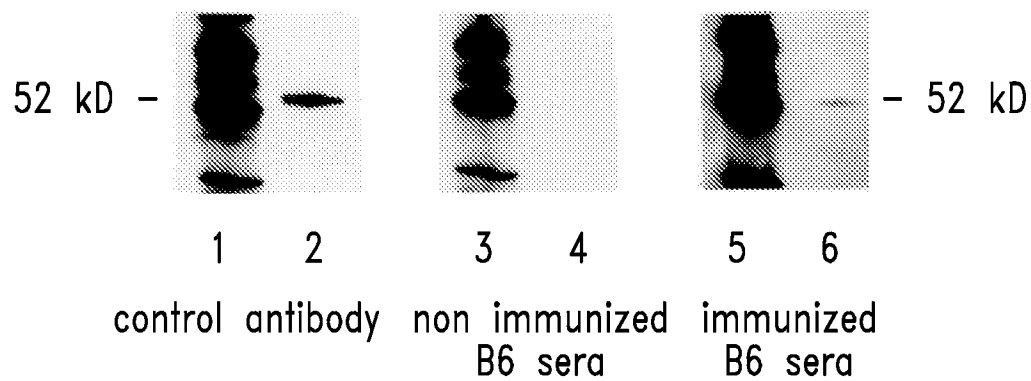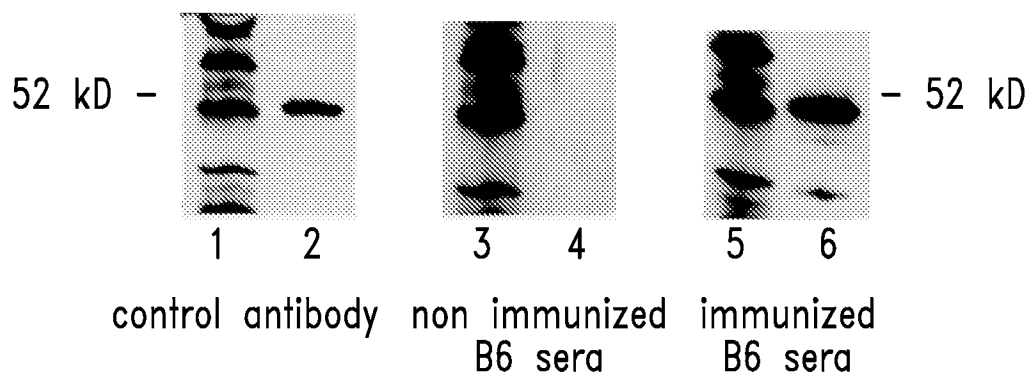*Fig. 3*

*Fig. 4*
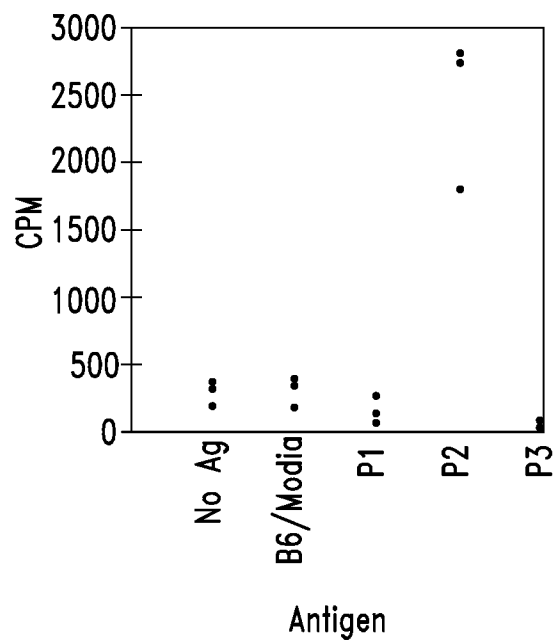
Fig. 5A



Fig. 5B



Fig. 5C

Vaccine A stimulated line

Vaccine B stimulated line
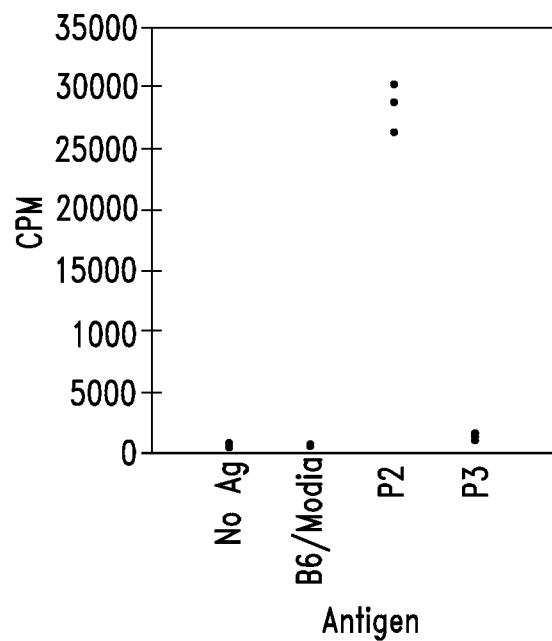
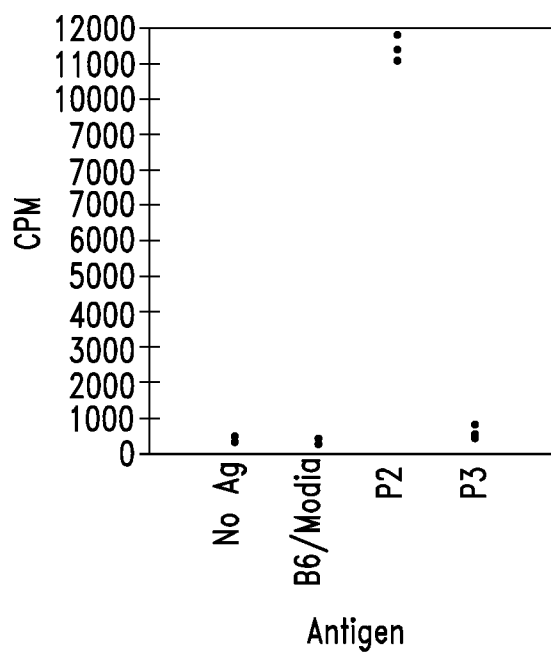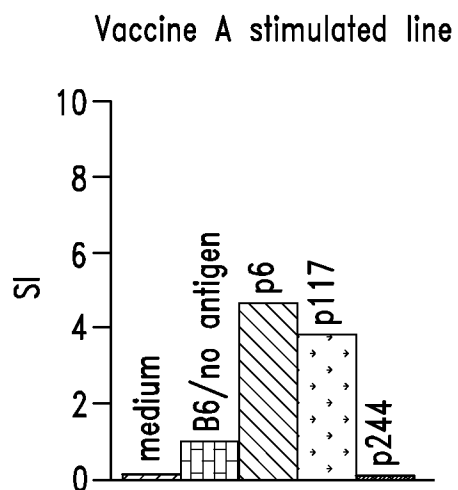*Fig. 6A*

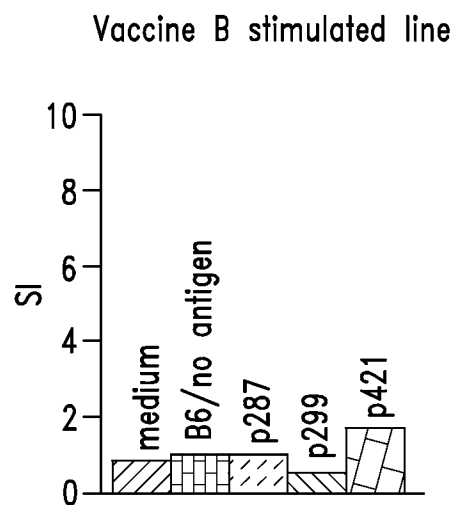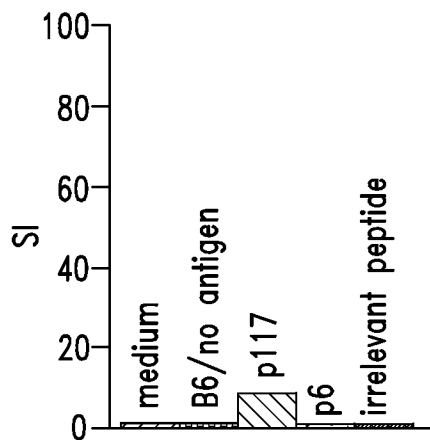*Fig. 6B*

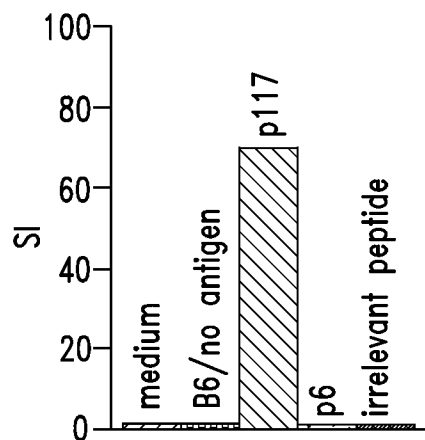p117-139 stimulated line



Fig. 7A

p117-139 stimulated clone



Fig. 7B

p6-22 stimulated line
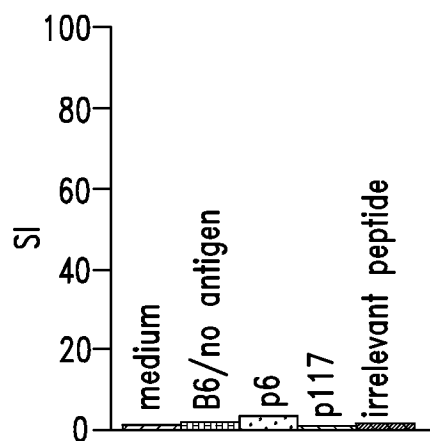


Fig. 7C

p6-22 stimulated clone
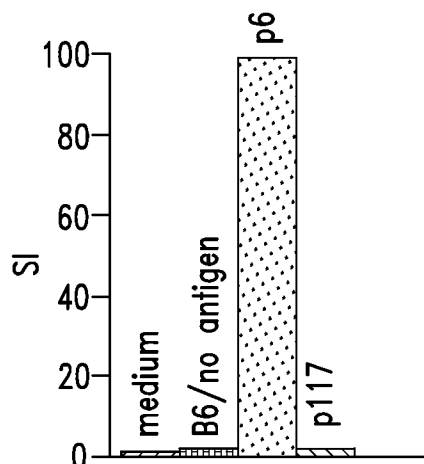


Fig. 7D

```
          5   10   15   20   25   30   35   40   45   50   55   60   65   70   75
MGSDVRDLNALLPAVPSLGGGGGCALPVSGAAQWAPVLDFAPPGASAYGSLGGPAPPPAPPPPPPPPPHSFIKQE
.....AAAAAAAAAAAAAAAAAA.......AAAAAA.........AAAAAAAAAAAA...................
..............................RRRR.........................................
...........................................................................
...........................................................................

         80   85   90   95  100  105  110  115  120  125  130  135  140  145  150
PSWGGAEPHEEQCLSAFTVHFSGQFTGTAGACRYGPFGPPPPSQASSGQARMFPNAPYLPSCLESQPAIRNQGYS
................AAA......AAAA.........................AAA......AAAAAA.........
.............................RRRR...................RRRRR...................
.............................................DDDDDDDDD.....................
...........................................................................

        155  160  165  170  175  180  185  190  195  200  205  210  215  220  225
TVTFDGTPSYGHTPSHHAAQFPNHSFKHEDPMGQQGSLGEQQYSVPPPVYGCHTPTDSCTGSQALLLRTPYSSDN
................AAAAA....................................AAAAAA...............AA
................RRRR........................................................
....................................................DDDDDDDDDDDDDDD...
...........................................................................

        230  235  240  245  250  255  260  265  270  275  280  285  290  295  300
LYQMTSQLECMTWNQMNLGATLKGVAAGSSSSVKWTEGQSNHSTGYESDNHTTPILCGAQYRIHTHGVFRGIQDV
AAAAAAAA...........AAA.AAA.....................................AAAAAAAAAAA
..................RRRRRRRRRR.....RRRR.............................RRRR.....
DDDDDD.............DDDDDDDDDD...............................................
....................................................................ddddd.........

        305  310  315  320  325  330  335  340  345  350  355  360  365  370  375
RRVPGVAPTLVRSASETSEKRPFMCAYPGCNKRYFKLSHLQMHSRKHTGEKPYQCDFKDCERRFSRSDQLKRHQR
AAAAA..AAAAAAAAAAA.......................................AAAA.AAAAAAAAAA.
....RRRRR.......................RRRR.......................................
.......DDDDDD..............................................................
...........................................................................

        380  385  390  395  400  405  410  415  420  425  430  435  440  445  450
RHTGVKPFQCKTCQRKFSRSDHLKTHTRTHTGKTSEKPFSCRWPSCQKKFARSDELVRHHNMHQRNMTKLQLAL
.............AAAA.AAAA..AA.....AAAA..........AAA....AAAAAAAA...AAA........
.........................................................RRRR..RRRR.............
...........................................................................
..............dddddddddddd.................................................
```

*Fig. 8A*

```
        5   10   15   20   25   30   35   40   45   50   55   60   65   70   75
MGSDVRDLNALLPAVSSLGGGGGCGLPVSGAAQWAPVLDFAPPGASAYGSLGGPAPPPAPPPPPPPPPPHSFIKQE
.....AAAAAAAAAAAAAAAAAAA.......AAAAAA.........AAAAAAAAAAAA...................
.............................RRRR..........................................
...........................................................................
...........................................................................


       80   85   90   95  100  105  110  115  120  125  130  135  140  145  150
PSWGGAEPHEEQCLSAFTLHFSGQFTGTAGACRYGPFGPPPPSQASSGQARMFPNAPYLPSCLESQPTIRNQGYS
......................AAAA........................AAA......AAAAAA...........
...........................RRRR.....................RRRRR..................
.................................DDDDDDDDD.................................
...........................................................................


      155  160  165  170  175  180  185  190  195  200  205  210  215  220  225
TVTFDGAPSYGHTPSHHAAQFPNHSFKHEDPMGQQGSLGEQQYSVPPPVYGCHTPTDSCTGSQALLLRTPYSSDN
................AAAAA.................................AAAAAA..............AA
...............RRRR.......................................................
..................................................DDDDDDDDDDDDDDD...
...........................................................................


      230  235  240  245  250  255  260  265  270  275  280  285  290  295  300
LYQMTSQLECMTWNQMNLGATLKGMAAGSSSSVKWTEGQSNHGIGYESDNHTAPILCGAQYRIHTHGVFRGIQDV
AAAAAAAA............AAA.AAA.....................................AAAAAAAAAAA
..................RRRRRRRRRR.....RRRR............................RRRR.....
DDDDDD.............DDDDDDDDDDD.............................................
.........................................................ddddd.........


      305  310  315  320  325  330  335  340  345  350  355  360  365  370  375
RRVSGVAPTLVRSASETSEKRPFMCAYPGCNKRYFKLSHLQMHSRKHTGEKPYQCDFKDCERRFSRSDQLKRHQR
AAAAA..AAAAAAAAAAA.....................................AAAA.AAAAAAAAAA.
....RRRRR.......................RRRR......................................
..DDDDDDDDDDD.............................................................
...........................................................................


      380  385  390  395  400  405  410  415  420  425  430  435  440  445  450
RHTGVKPFQCKTCQRKFSRSDHLKTHTRTHTGKTSEKPFSCRWHSCQKKFARSDELVRHHNMHQRNMTKLHVAL
.............AAAA.AAAA..AA.....AAAA..........AA....AAAAAAAA...AAAA.......
.................................................RRRR..RRRR...............
...........................................................................
................ddddddddddddd.............................................
```

*Fig. 8B*
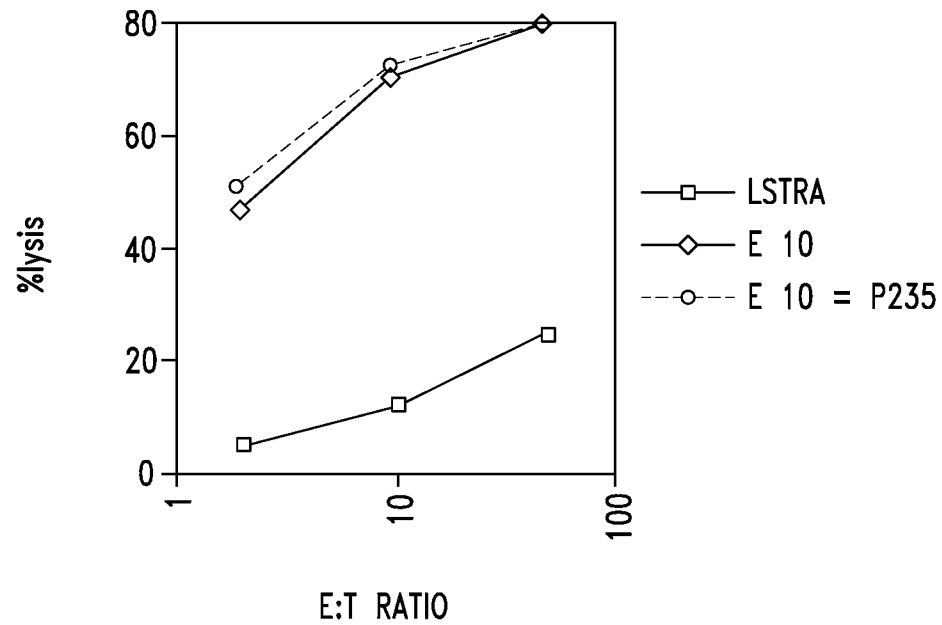
*Fig. 9A*
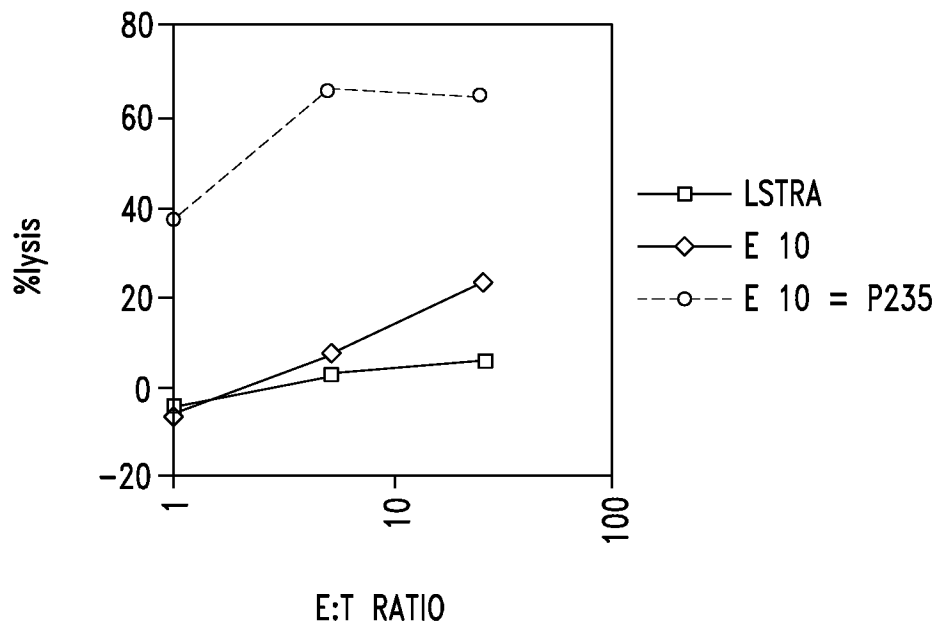


*Fig. 9B*

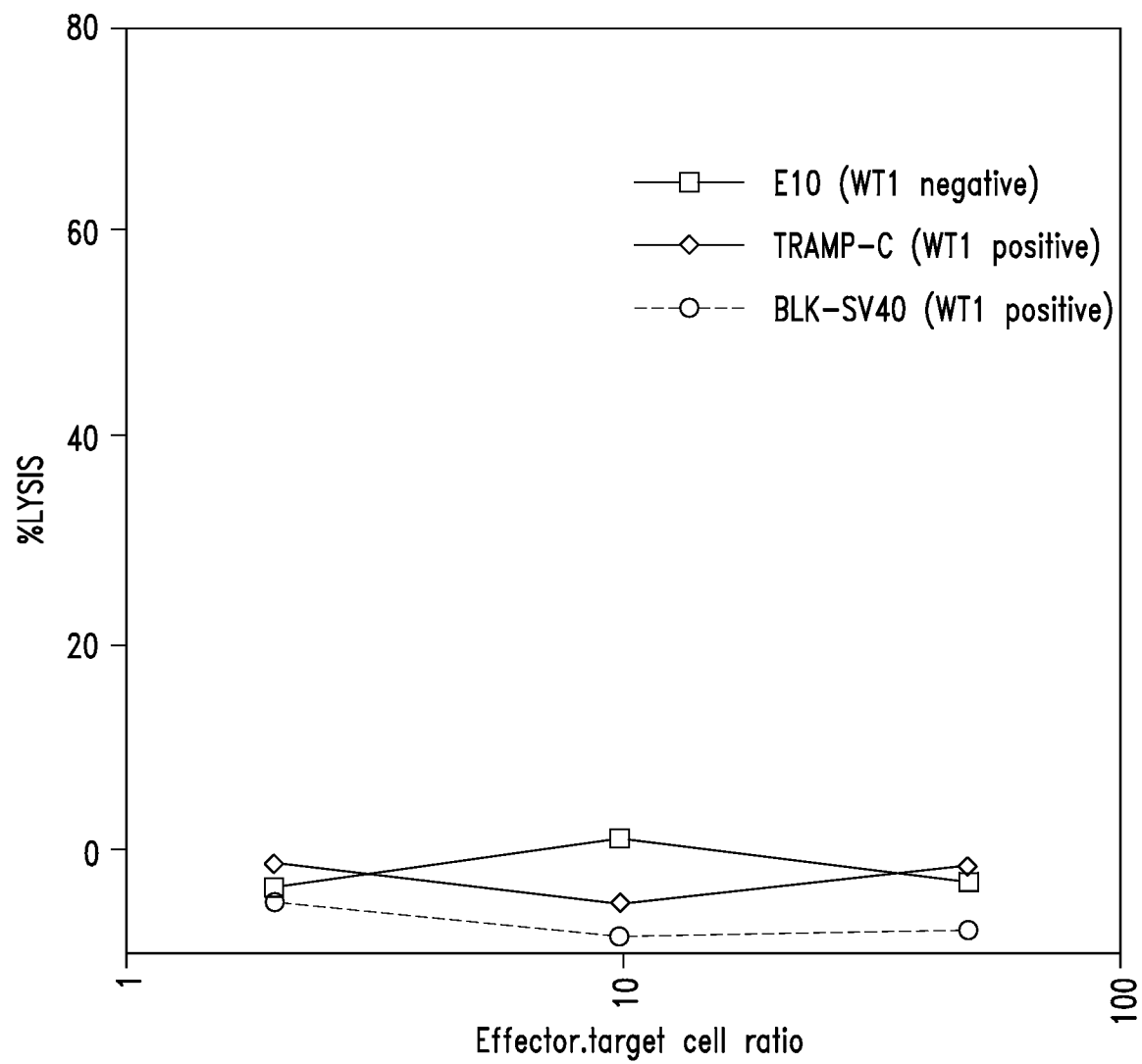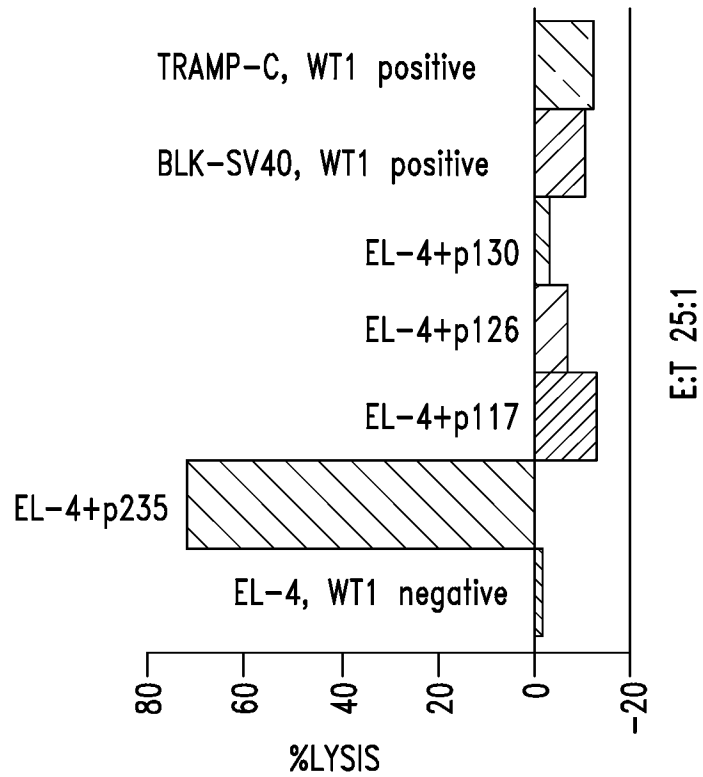*Fig. 10A*
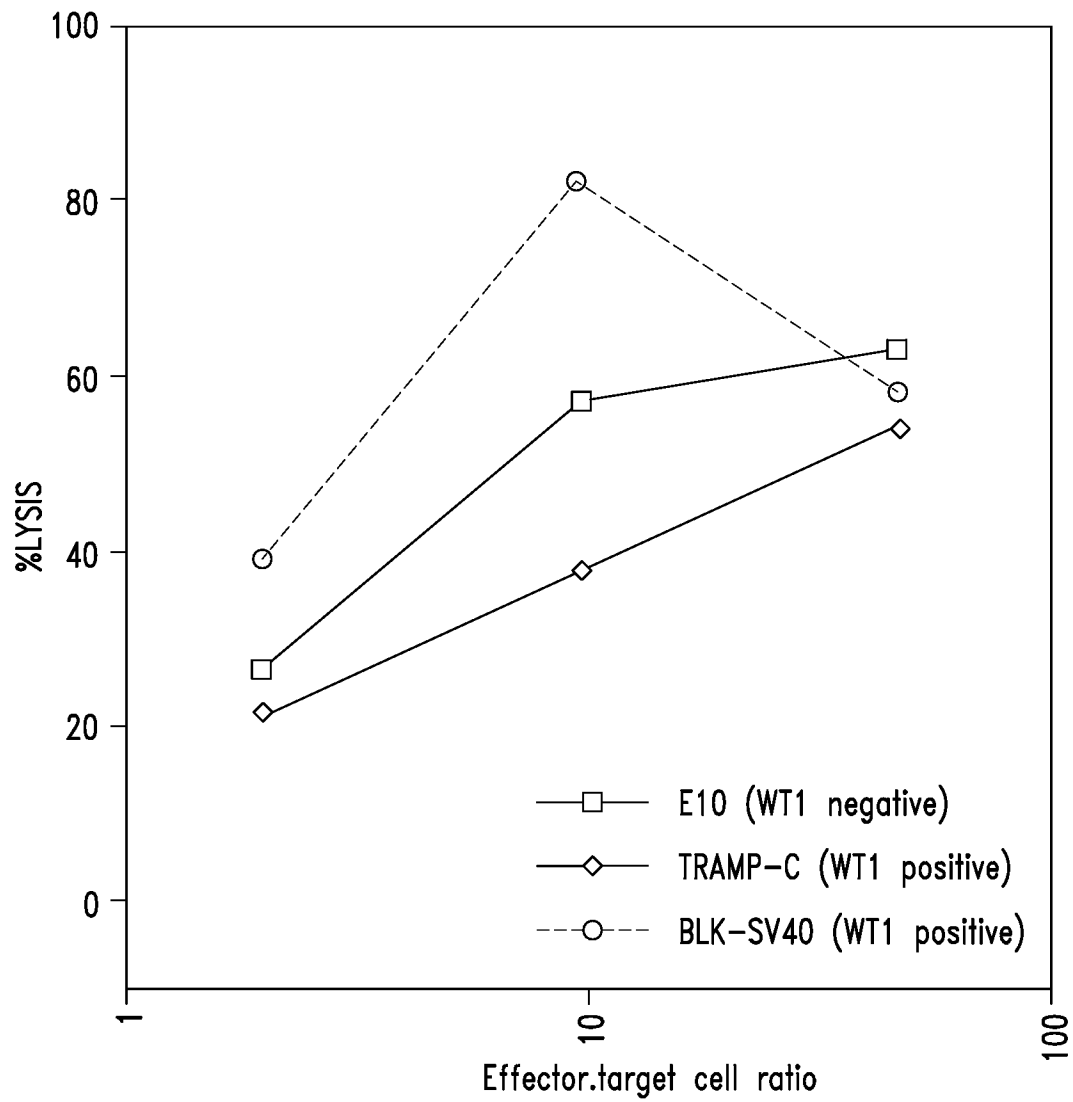
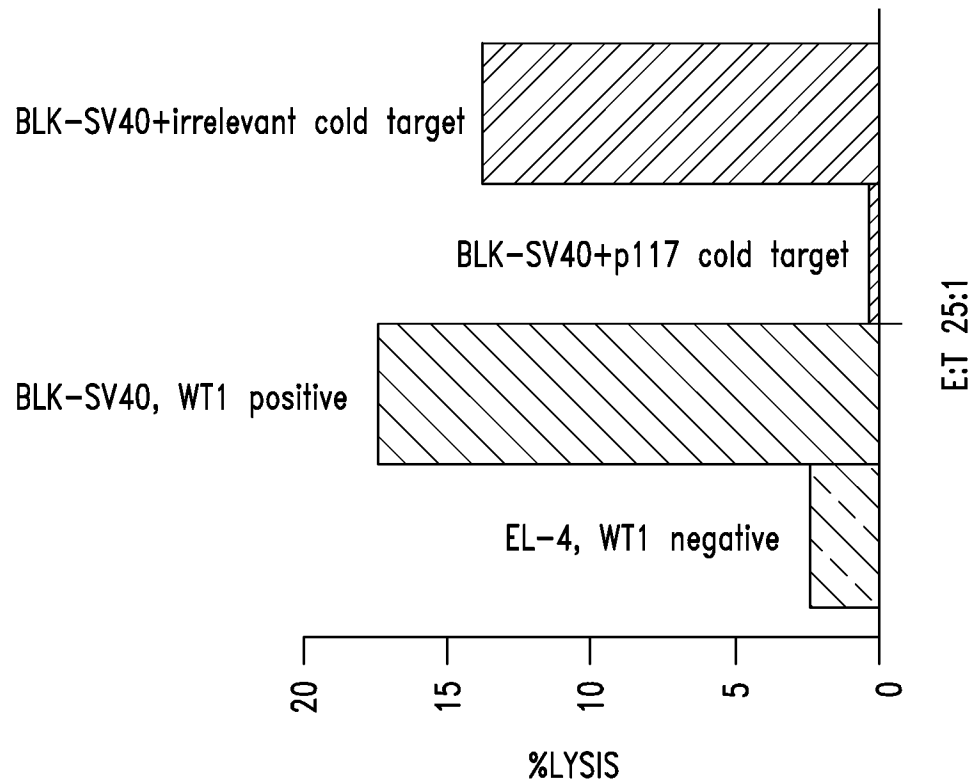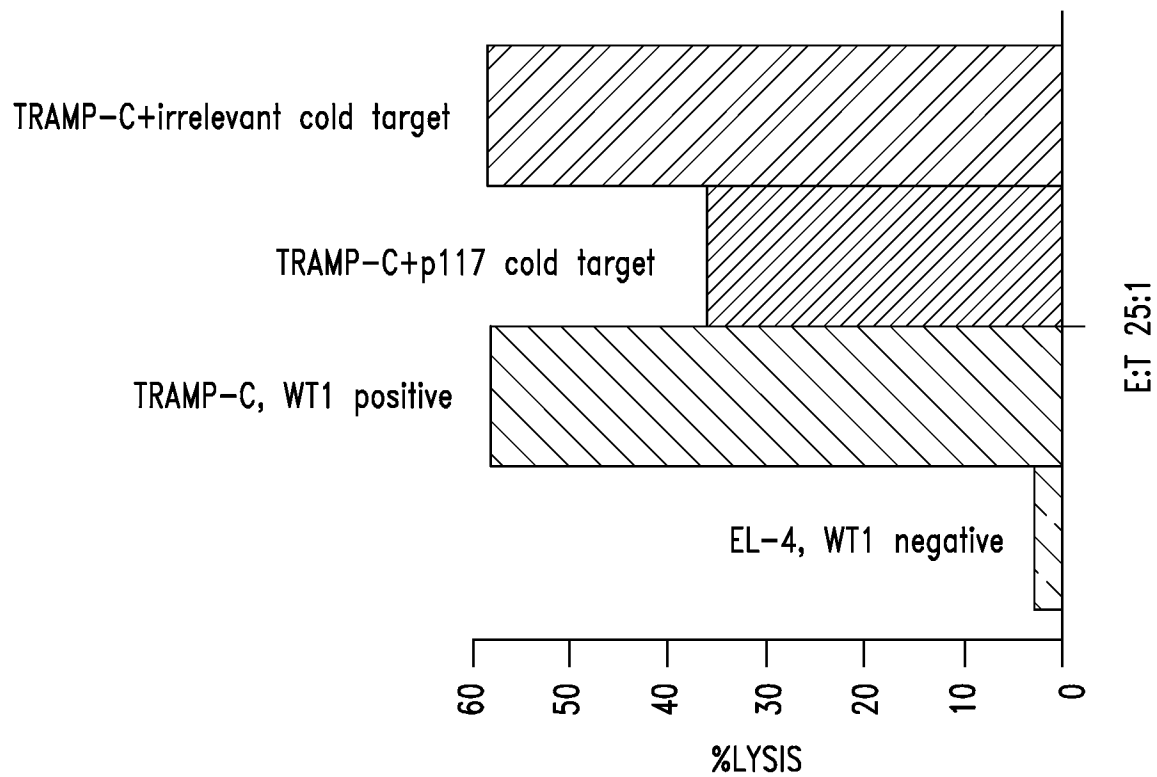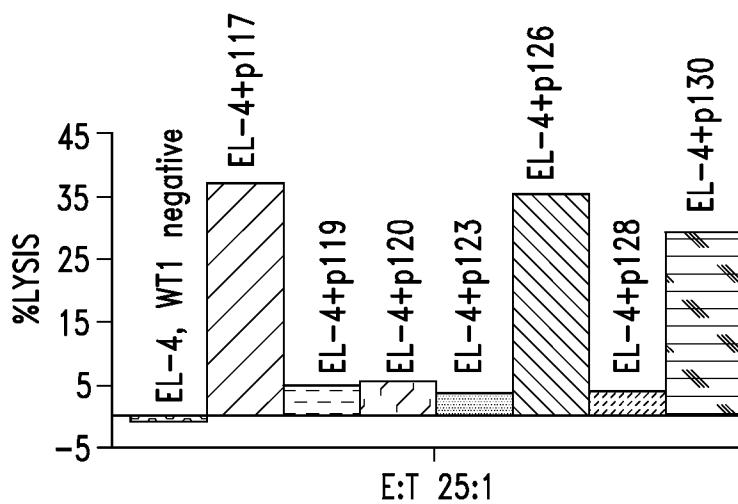*Fig. 10B*
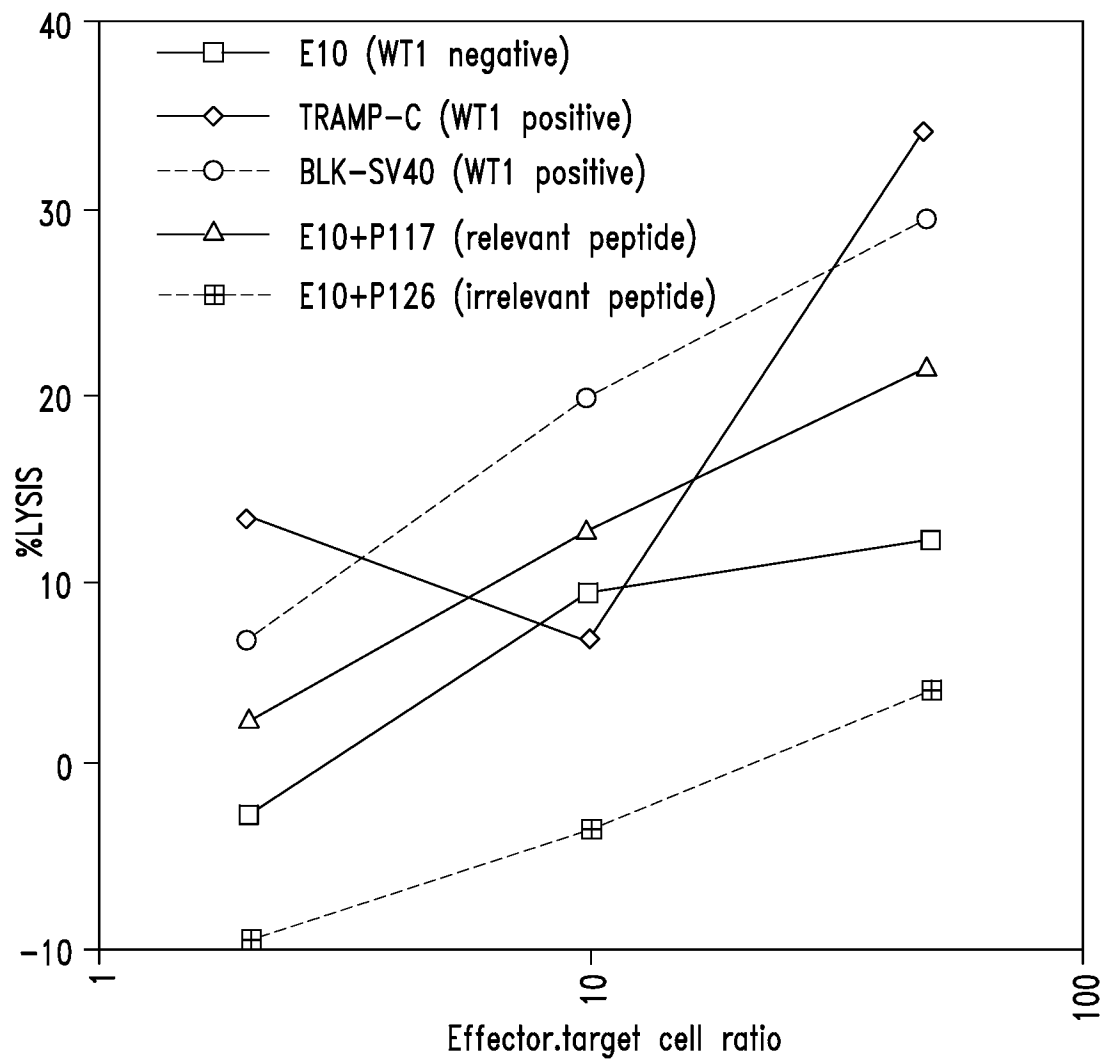
*Fig. 10C*
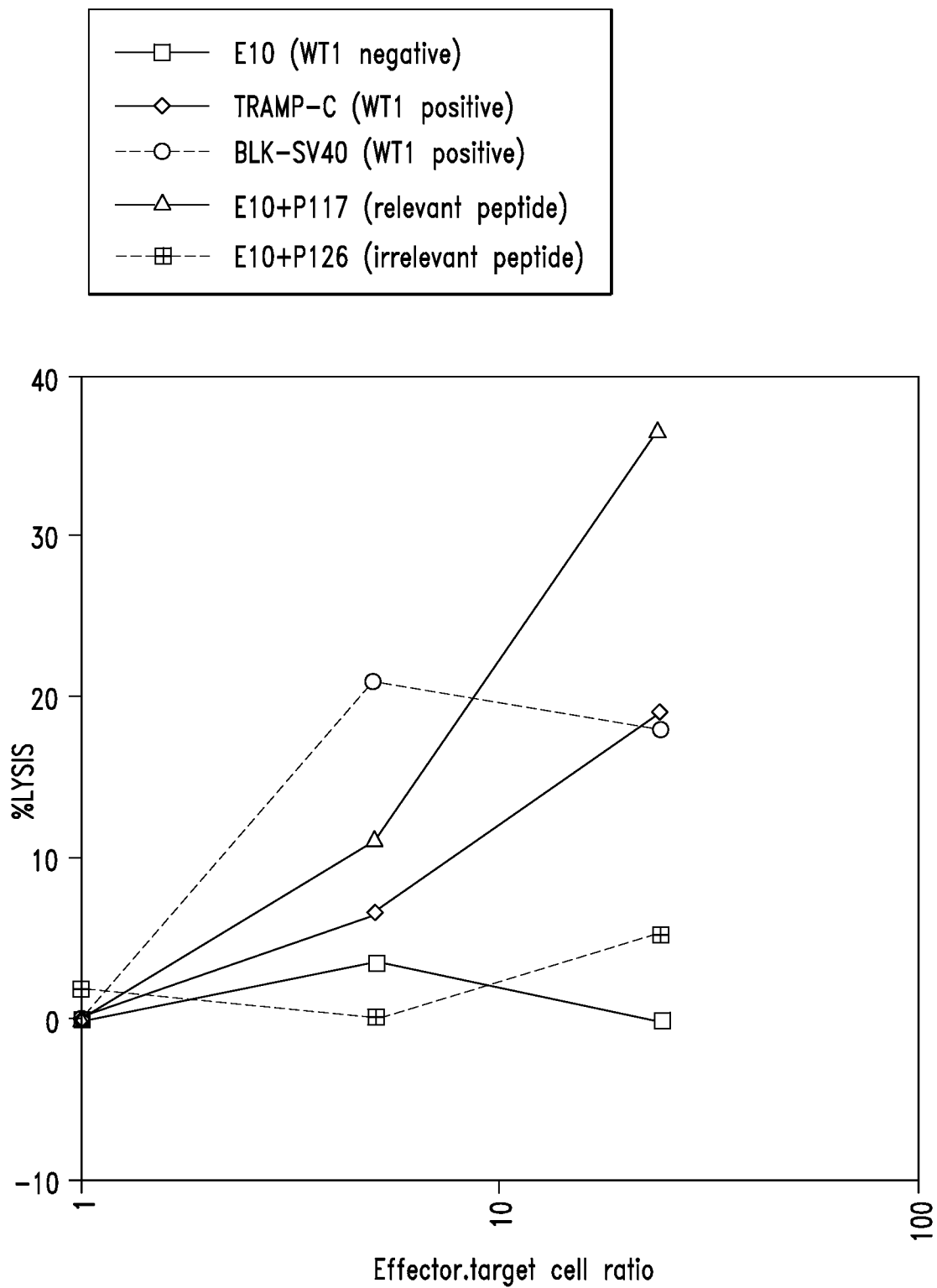
*Fig. 10D*
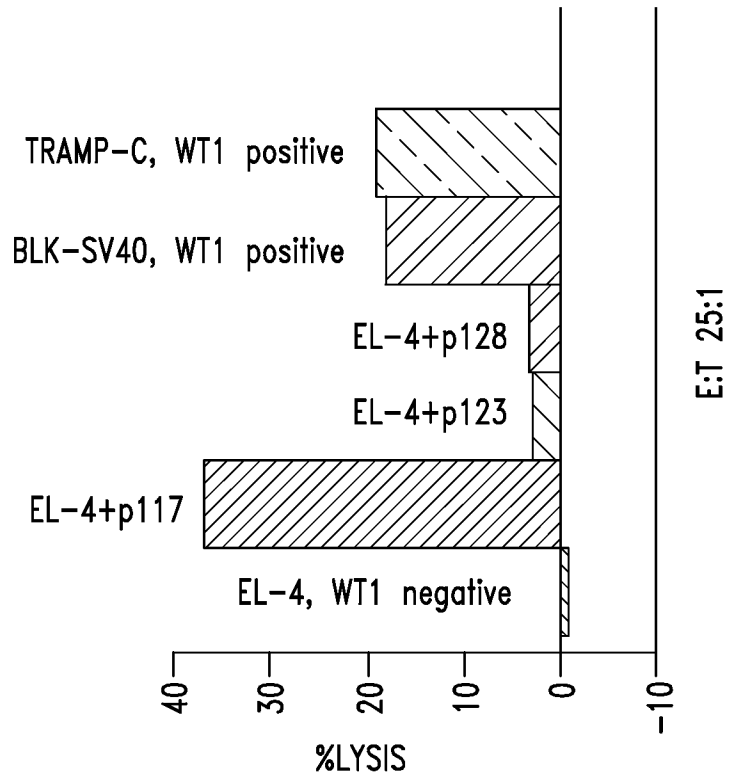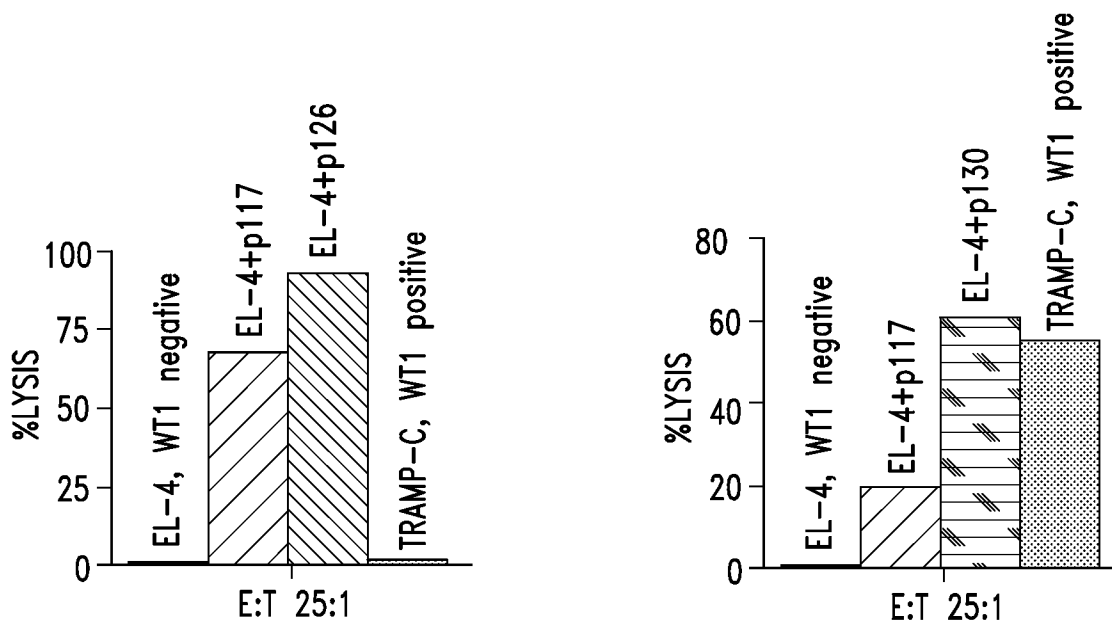
*Fig. 11B*

*Fig. 11A*

*Fig. 12B*


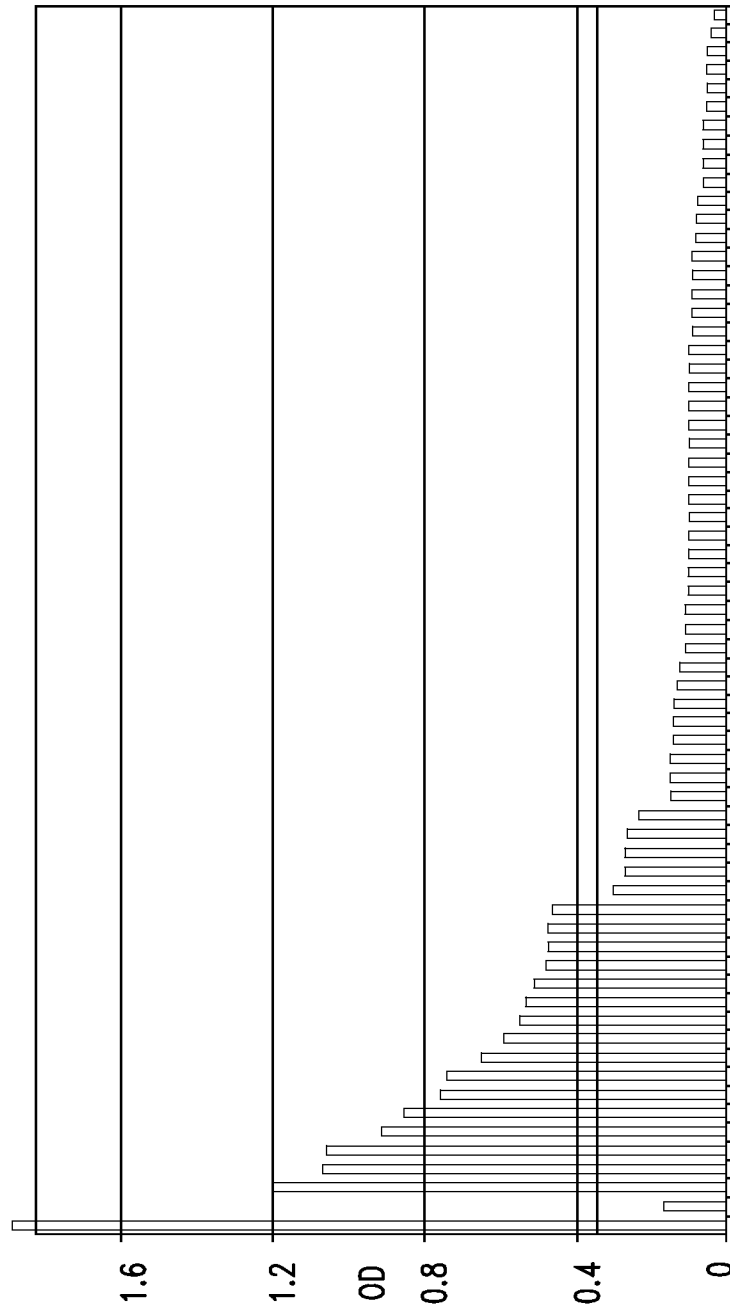
*Fig. 12A*

Fig. 13A
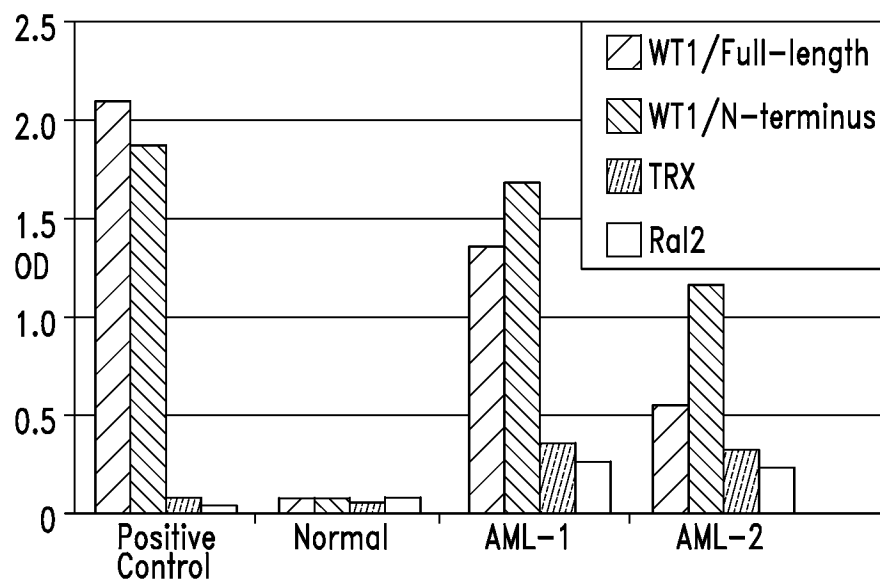


Fig. 13B
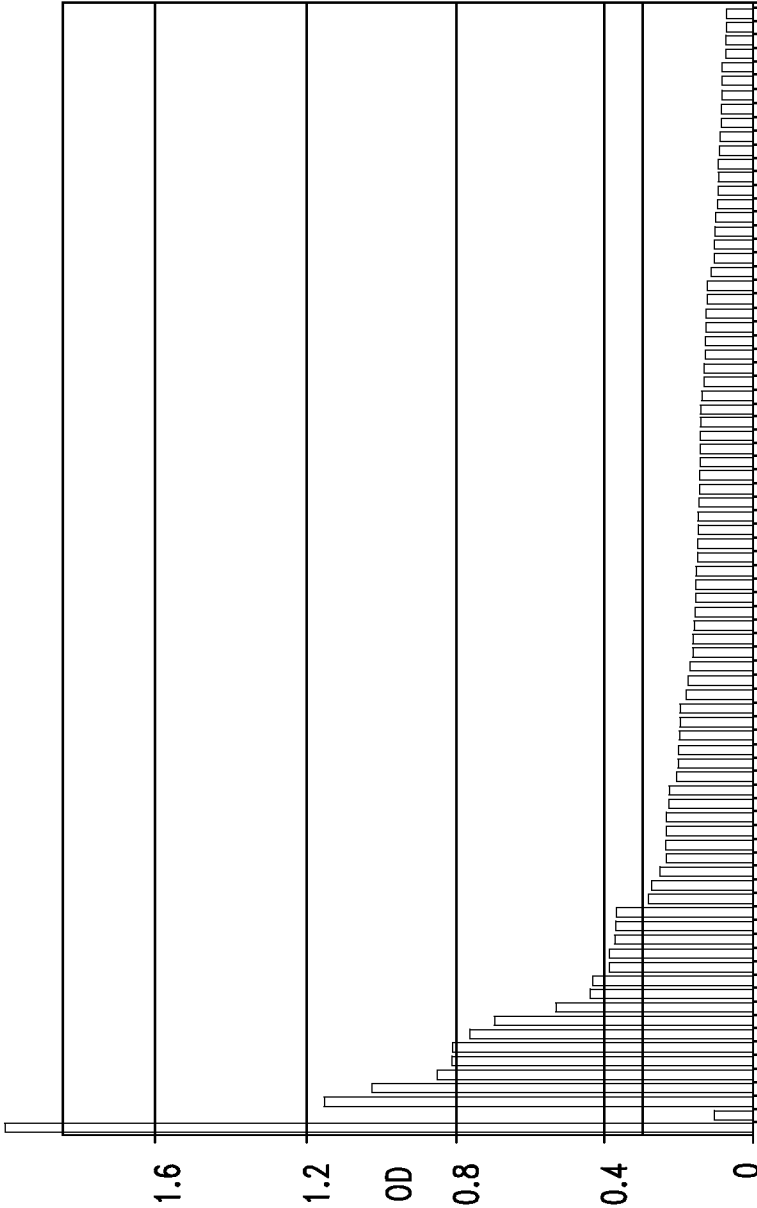


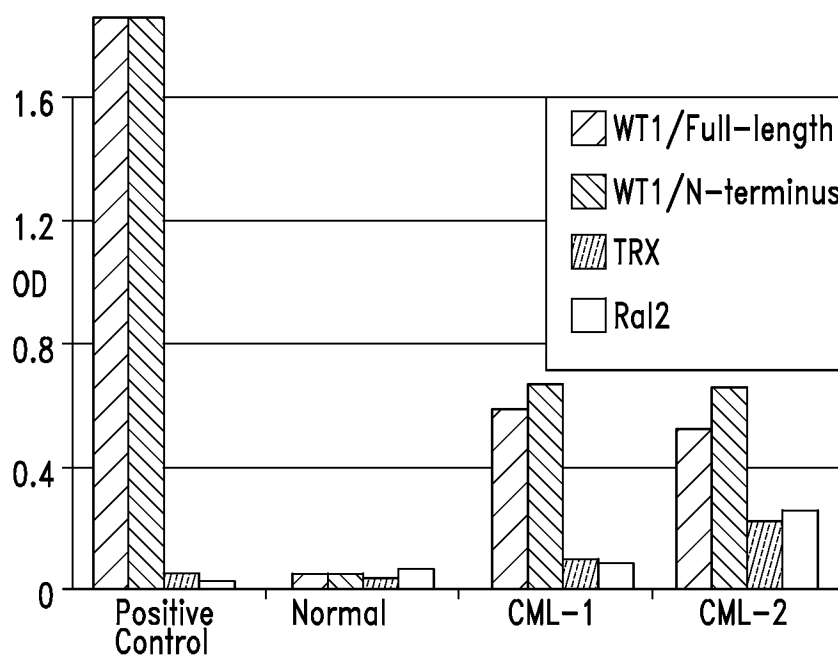Fig. 13C

*Fig. 14*

*Fig. 15*

*Fig. 16*

*Fig. 17*

TABLE 1: Characteristics of Recombinant WT1 Proteins Used for Serological Analysis

| NAME | Recombinant Protein | WT1 Amino Acid Position | Molecular Weight |
|---|---|---|---|
| WT1/full-length | Ral2-WT1 full length fusion protein | aa 1-449 | 85kDa |
| WT1/N-terminus | TRX-WT1 N-terminus fusion protein | aa 1-249 | 60kDa |
| WT1/C-terminus | WT1 C-terminus protein | aa 267-449 | 50kDa |

*Fig. 18*